

DISCUSSION

WEIDEMANN (paper by M. LAMPTON). Congratulations for your observations. In your paper (Ap. J. Oct. 1976, in press) you state a temperature of 11,000°K, whereas now you have 60,000 - 90,000°K. This is now more convincing, since a hydrogen Balmer line of $W_{\lambda}=9 \text{ \AA}$ as observed for HZ 43 cannot be formed in an atmosphere much hotter than 50,000°K. What you have detected is, however, important from the point of view of white dwarfs : the absence of the He II discontinuity at 229 Å shows clearly that hot DA white dwarfs are already helium deficient, this gives you the right to use a pure H atmosphere.

FRIEDJUNG (paper by M. LAMPTON). Your two white dwarfs had red companions. How far are they from their companions ? Is there a possibility of their companion being close enough for mass transfer and the formation of an accretion disc.

LAMPTON. It is true that both HZ 43 and Feige 24 have dwarf M companions. However the mass loss rates are very small for M dwarfs, and binary separations are large. At present, I discount mass transfer as an energy source.

DWORETSKY (paper by M. LAMPTON). Is there any possibility of observing the nearest and hottest O subdwarfs in the EUV ? O subdwarf stars have helium and should be observable at wavelengths longward of 228 Å. However, we presently have upper limits throughout the EUV on BD +28°4211.

UNDERHILL (paper by R. FARRAGIANA et al.). Your Fe III criterion isolates only an extended atmosphere. It does not tell whether the underlying star is a supergiant or a shell star. You use *other* criteria to determine that ζ Tau and ο And are shell stars whereas β Ori, η CMa and ε Ori are supergiants. In the ultraviolet of B5 stars the strength of the absorption from resonance lines (C II, P III, Si IV) is a good luminosity criterion.

BUSCOMBE (paper by R. FARRAGIANA et al.). The star υ Sco is certainly a member of the Scorpio-Centaurus association and lies close to the main sequence. The wings of the hydrogen lines are broad, and the Bright Star Catalogue erroneously quotes a luminosity based on a defective spectrogram. On the other hand, the star θ Arae to which J.P. Swings referred, is far beyond Sco-Cen and has high luminosity well shown on beautiful high dispersion plates obtained by T. Dunham.

BUSCOMBE (paper by Y. KONDO). How do you resolve the interstellar components, and were comparisons made with Hobbs' work on those of other ions ?

KONDO. Answer. We have developed a technique to compute the photospheric absorption profiles for stars of this type (Kondo, Modisette and Wolf, Ap. J., 199, 110, 1975). We evaluate the interstellar absorption as the difference between the computed photospheric absorption and the observed absorption if no circumstellar absorption is present. In the case just discussed, our results are in reasonable agreement with those obtained from other ultraviolet interstellar lines.

BIDELMAN (paper by Y. Kondo). α UMa is a close visual binary, the companion being a few magnitudes fainter but of considerably earlier spectral type than the primary. Is it possible that you are seeing, at the Mg II lines, some effect of the continuous spectrum of the companion ?

KONDO. Answer. According to the information given in the Catalogue of Bright Stars, the close visual companion to α UMa should not have noticeable effects on the continuum of the observed spectrum. However, I shall look into it.

KHARADZE (paper by W. Bidelman). I would like to ask Dr. Bidelman what is his opinion. How much strongly the results obtained from orbital experiments are able to devaluate that whole multitude of determined spectral types and luminosities which are done, published and applied for researches as the ground based observations.

BIDELMAN. Answer. I am sorry that I cannot give a quick answer to that question. Certainly much more study will be required to fully investigate the proper role of the ultraviolet in spectral classification. For the stars that I have studied the phenomena of mass loss represent new and very important factors, and for all of the stars of later type I would anticipate much new information on chromospheric phenomena in general to become available. Whether this new information will radically change our approach to spectral classification is at present an unanswered question.